ENGLISH

DEPARTMENT

Semester 5

Socio/Psycho LX

ACADEMIC YEAR: 2011-2012

Pr. R. RHAZALI (2011)

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ENGLISH SECTION
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Socio/Psycho Lx
Semester 5
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SOCIO/PSYCHO Lx : COURSE DESCRIPTION

Course Objectives:

The main objective of this course is to introduce the students to the basics of sociolinguistics and psycholinguistics and familiarize them with the concepts related to the study of **language in society** and **Language and Mind.**

Course Content:

Week 1: Introduction
Week 2: **Sociolinguistics: Language in Society**
Week 3: Varieties of Language
Week 4: Varieties of Language (Cont'd))
Week 5: Bilingualism & Multilingualism
Week 6: Diglossia
Week 7: Code Switching and Borrowing
Week 8: Mid term test
Week 9: **Psycholinguistics: Language & Mind**
Week 10: Language Acquisition
Week 11: Language Acquisition (cont'd)
Week 12: The Mental Lexicon
Week 13: Speech Perception
Week 14: Sentence Production and Comprehension
Week 15: Review for final test
Week 16: Final Test

Teaching Methodology: Lectures, presentations, discussions, debates...
Evaluation: Mid-term test 30%
Final test 50%
Teacher's Evaluation: 20% (Attendance, participation, discipline, class work, homework, presentations...)

GOOD LUCK !

PART 1: Sociolinguistics

Sociolinguistics: Language in Society

Language is considered as the most complex achievement of mankind since it provides a wealthy material for the investigation of learning. It is a system of patterned behaviour consisting of arbitrary sound units arranged for the purpose of communication. Language is no more considered as a mere medium in which ideas are expressed, but it has proved to be an interdisciplinary study, for now language is being subjected to psycholinguistic study and research raising issues such as the relationship between thought and language development in children and the interpretation of meaning in sentences. In the same way, anthropology has dealt with the language system considering it as an integral part of the culture of any society. Moreover, sociolinguists have also got interested in language by trying to reflect the interrelationship between sociology and linguistics especially the matter of language as it is used in the different contexts.

Indeed, Language isn't a "thing" external to human beings, but rather, something that makes up a part of who we are. Language must be studied in its social context. In so doing, we learn both about language and about ourselves, the people who use it, live with it, and live in it. Sociolinguistics, then, as the name implies, is the study of language in human society.

Sociolinguistics as the study of language in relation to the people who use it covers such topics as: the notion of "dialect", the balance between what is individual and what is social concerning the use of language and the attitudes evoked by languages and dialects. It is the study of the effect of any and all aspects of society, including cultural norms, expectations, and context on the way language is used.

It also studies how dialects differ between groups separated by certain social variables, e.g., ethnicity, religion, status, gender, level of education, etc., and how creation and adherence to these rules is used to categorize individuals in social class or socio-economic classes. As the usage of a language varies from place to place (dialect), language usage varies among social classes, and it is these sociolects that sociolinguistics studies.

It is noticed that this field is getting more attention than before. Chomskyan linguists are getting to realize that Sociolinguistics is getting to provide explanations to linguistic phenomena that linguistics failed to address. Chomsky himself has evaded many aspects of the language that Sociolinguists have raised in their studies.

Sociolinguistics was first developed by the amazing contributions of the father of Sociolinguistics, William Labov. The Labovian contributions managed to create a field that did not exist. His research and writings have created an audience of researchers interested in that field. More attention was then turned to this area.

The social aspects of language were in the modern sense first studied by Indian and Japanese linguists in the 1930s, and also by Gauchat in Switzerland in the early 1900s, but

none received much attention in the West until much later. The study of the social motivation of language change, on the other hand, has its foundation in the wave model of the late 19th century. Sociolinguistics in the west first appeared in the 1960s and was pioneered by linguists such as William Labov in the US and Basil Bernstein in the UK.

It is necessary to note that there is a difference between sociolinguistics and the sociology of language. Both disciplines study language in relation to society but the difference between them concerns the objective of each. The main objective of sociolinguistics is **language** whereas that of the sociology of language is **society.**

VARIETIES OF LANGUAGE

0. INTRODUCTION

Varieties are different instances of language. Classical Arabic, for example, can be considered as the abstract notion (language) and the Arabic dialects as varieties of this notion. A variety may be larger than language, including different languages or it may consist only of items used by some particular family or village. In this case, a variety is considered as smaller than language. In fact, one variety may include another; they form bundles which are not discrete and clearly delimited. Thus, items move from one bundle to another.

1. WHAT IS LANGUAGE?

Language refers to a particular variety that is written and very rarely used as a spoken form. A language has more prestige and more linguistic items than a dialect It is also written, whereas, a dialect is spoken ; for example, Classical Arabic is written and what is spoken are the dialects spoken in all the Arab World. However, it has been noted by sociolinguists that it is very difficult to draw a sharp line between language and dialect.

2. WHAT IS DIALECT?

A dialect is a variety of language and is spoken, not written (note that in Morocco there are sometimes short stories written in Moroccan Arabic, but this is an exception to the rule). It is a variety used according to user. The term dialect was borrowed from Greek in the Renaissance. Hudson (1980:31) states that the distinction between language and dialect is seen as due to the influence of Greek culture. This is so because the distinction was developed in the Greek language because of the existence of many distinct written varieties in use in Classical Greece. Each of these varieties was associated with a different area and used for a different kind of literature. Sociolinguists say that a dialect lacks prestige and is smaller than language.

3. WHAT IS REGISTER?

It is a variety used according to use. Hudson (1980:49) claims that « ***one's dialect shows who...you are, whilst one's register shows what you are doing.*** » Michael Halliday (1978:33) distinguishes three types of dimension: FIELD, MODE and TENOR (or style).
1. FIELD: the purpose and subject-matter of the communication. It simply refers to 'why' and 'about what' a communication takes place.

2. MODE: the means by which communication takes place: spoken or written. It refers to the how
3. TENOR: depends on the relation between participants. It is about 'to whom'; that is to say, how a speaker or the writer defines how he sees the person with whom he is communicating.
To sum up, a register is a variety of speech or writing used depending on the topic and also on the person addressed.

WHAT IS SPEECH COMMUNITY?

It is a community based on language (compare linguistic community). However, there has been confusion and disagreement over the exact definition of a speech community. Many definitions were given by various sociolinguists such as Lyons, Hockett, Bloomfield, Gumperz and Labov among others. Each gave a different definition:

1. Lyons (quoted in Hudson (1980:25)) states that a speech community is « ***all the people who use a given language (or dialect)*** ».

2. Hockett (quoted in Hudson (1980:26)) claims that a speech community is « ***the whole set of people who communicate with each other, either directly or indirectly, via the common language*** **»**.

3. Bloomfield (quoted in Hudson (1980:26) explains that « ***a speech community is a group of people who interact by means of speech.*** »

4. Gumperz (quoted in Hudson (1980:26)) defines a speech community as « a ***social group which may be either monolingual or multilingual, held together by frequency of social interaction patterns and set off from the surrounding areas by weaknesses in the lines of communication.*** » He later gave another definition stating that « ***the speech community (is) any human aggregate characterised by regular and frequent interaction by means of a shared body of verbal signs and set off from similar aggregates by significant differences in language use.*** »

5. Labov (quoted in Hudson (1980:27)) put more emphasis on attitudes to language by claiming that « ***the speech community is not defined by any marked agreement in the use of language elements, so much as by participation in a set of shared norms; these norms may be observed in overt types of evaluative behaviour, and by the uniformity of abstract patterns of variation which are invariant in respect to particular levels of usage.*** »

Recently, the term speech community has been avoided altogether. Le Page (quoted in Hudson (1980:27)) advocates an approach which refers to groups in society that have distinctive speech characteristics as well as other social characteristics. He explains that:
« Each individual creates the systems for his verbal behaviour so that they shall resemble those of the group or groups with which from time to time he may wish to be identified. »
Note that sociolinguists themselves differ in their definitions and hence it is very difficult to try and have one and only one definite answer to the question above: WHAT IS A SPEECH COMMUNITY?

5. WHAT IS STANDARD LANGUAGE?

A standard language according to Hudson is the result of a direct and deliberate intervention by society, and this intervention is called standardisation. However, the notion 'standard

language' is imprecise, but a typical standard language will have passed through the following processes:

1. SELECTION: a particular variety must be selected as the one to be developed into a standard language. The choice is a matter of great social and political importance as the variety chosen gains prestige and hence the people who speak it share in this prestige.

2. CODIFICATION: dictionaries and grammar books must be written to 'fix' this variety so that everyone agrees on what is correct and what is not.

3. ELABORATION OF FUNCTION: the selected variety can be used in all the functions associated with writing and in official institutions such as parliaments and law courts as well as in education.

4. ACCEPTANCE: the variety selected has to be accepted by the population as the variety of the community. Once a language becomes standard after going through the above processes, it serves as a unifying force for the state, as a symbol of independence of other states and as a marker of its difference from other states.

6. WHAT IS PIDGIN?

A pidgin is a variety created out of two existing varieties for specific purposes. It is also called a trade language as the reason for wanting to communicate is often trade. The process by which pidgins are created is called « **pidginization** ». Hudson (1980:61) gives a clear explanation of pidgins by stating that: « these ***are varieties created for practical and immediate purposes of communication between people who otherwise would have no common language whatsoever, and learned by one person from another within the communities concerned as the accepted way of communicating with members of the other community.*** »

The term « pidgin » is thought to come from the English word « ***business*** », as pronounced in the Pidgin English which developed in China.

7. WHAT IS A CREOLE?

A Creole is a pidgin which has gained native speakers; in other words, when the children of those who use a pidgin acquire it as a mother tongue, it becomes a Creole. The process by which a pidgin develops into a Creole is called « **creolization** ».

8. CONCLUSION:

What have been given above are just definitions and points of views expressed by sociolinguists. More elaboration of the issues of Dialects, Pidgins and Creoles will be presented in due time.

Bilingualism and Multilingualism

1. Bilingualism:

Bilingualism is a concept known as the habitual use of two languages especially in speaking. A bilingual person is defined as an individual who switches from one language to another according to appropriate changes in the speech situation but not in an unchanged speech situation, and not within a single sentence. The phenomenon of bilingualism is much discussed in sociolinguistics.

In fact, many sociolinguists showed an interest in this phenomenon in different countries. Fantini (1985) defines bilingualism as the use of two languages by a person called a bilingual. He makes the difference between language and bilingualism stating that the former is a property of the group while the latter is a property of the individual. Miller (1984) also discusses bilingualism. He says that in order to keep bilingualism, the two languages should be used continuously in communicative naturalistic settings. He differentiates between folk and elitist bilingual education. The former means that some ethnic groups are obliged to become bilinguals in order to survive in a specific community. As for the latter, it deals with the privilege of the well-educated middle class members of most societies. Besides, Miller discusses the effect of bilingualism on people and suggests that: "Positive effects of bilingualism involve metalinguistic types of understanding such as sentence ambiguity, ability to mark and substitute the basic word units of a sentence as well as the basic units of a non-verbal matrix system." Dodson (1981), however, finds that bilingualism is very difficult to define, for no agreement has been reached between psychologists, neurologists and educators or linguists concerning the nature of this phenomenon.

Broadly speaking, **Bilingualism** is defined as the capacity of an individual to communicate in **two** languages, while **multilingualism** is defined as the ability to communicate in **more than two** languages. Most Moroccans, for instance, are either Arabic/ French or Arabic/Berber bilinguals. Some of them are even multilingual in Arabic, Berber (Amazigh or Tamazight), French, English and Spanish. There are **3 types** of bilinguals: **compound, coordinate and subordinate.** Compound bilinguals are those who have been brought up in a thoroughly bilingual home environment (for instance, a child whose mother and father speak different languages at home); coordinate bilinguals, on the other hand, are those who have learned the second language at school (the majority of Moroccan children acquire Arabic (or Berber) at home and learn Classical Arabic and French at school). As for subordinate bilinguals, they are dominant in **ONE** of the languages they speak; in this case, they are **unbalanced** bilinguals.

2. Multilingualism

A **multilingual** person, in a broad definition, is one who can communicate in more than two languages. A generic term for multilingual is **polyglot.**

Multilingual speakers have acquired and maintained at least two languages during childhood. The first language (the mother tongue) is acquired without formal education. Children acquiring two or more languages in this way are called simultaneous bilinguals or

multilinguals. Even in the case of simultaneous bilinguals/multilinguals, one language usually dominates over the other(s).

This kind of bilingualism/multilingualism is most likely to occur when a child is raised by bilingual/multilingual parents in a predominantly monolingual environment. It can also occur when the parents are monolingual but have raised their children in two or more different countries.

One group of academics argues for the **maximal definition** which means that speakers are as sufficient in one language as they are in others and have as much knowledge of and control over one language as they have of the others. Another group of academics argues for the **minimal definition**, based on use. People who successfully communicate phrases and ideas while not fluent in a language may be seen as bilingual according to this group.

However, problems may arise with these definitions as they do not specify how much knowledge of a language is required to be classified as bilingual/multilingual. As a result, since most speakers do not achieve the maximal ideal, language learners may come to be seen as deficient and by extension, language teaching may come to be seen as a failure. One does not expect children to "speak geography" or to have become a professional athlete by the time they have left school, yet for graduating school children anything less than fluency in a second language could be seen as inadequate.

Diglossia

Diglossia is a term used in sociolinguistics to refer to a situation where two different varieties of a language co-occur in a specific speech community, each with a distinct range of social functions. Sociolinguists talk in terms of a high (H) variety and a low (L) variety, corresponding broadly to a difference in formality: The H is learnt in schools while the L is acquired at home. The sociolinguist Charles Ferguson (1959) was the first to introduce the term Diglossia in the English language to describe the linguistic situation in Greece, the Arab World, Haiti and German-speaking Switzerland.

I. DEFINITIONS OF DIGLOSSIA

In 1930, a French Arabist, W. Marçais (1930:401) described diglossia in regards to Arabic as a peculiar linguistic phenomenon that involved 2 aspects of the same language. He described Arabic diglossia as follows:

« La diglossie arabe se présente à nous sous deux aspects sensiblement différents:

1. Une langue littéraire dite arabe écrit, ou régulier, ou littéral, ou classique, qui seule a été partout, est toujours écrite dans le passé, dans laquelle sont rédigés les ouvrages littéraires ou scientifiques, les articles de presse, les actes judiciaires, les lettres privées, bref tout ce qui est écrit, mais exactement telle qu'elle se présente à nous n'a peut être jamais été parlée nulle part... .

2. Des idiomes parlés, des patois...dont aucun n'a jamais été écrit..., mais qui partout, et peut être depuis longtemps, (sont) la seule langue de la conversation dans tous les milieux populaires ou cultivés. »

Later on, diglossia was defined as the « concurrence between a learned, written language and an exclusively spoken vernacular. » (De Cert 1957). Ferguson (1959) was the first to introduce the term diglossia in the English language and he defined it as:

"... a relatively stable language situation in which, in addition to the primary dialects of the language (which may include a standard or regional standards), there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any sector of the community for ordinary conversation."(p.336)

From this quote, we can deduce that both H and L varieties may be used for oral and written purposes. In the Arabic-speaking world, the language used at home is a local version of Standard Arabic with little variation between the most educated and the least educated speakers. It is expected from someone who delivers a lecture in a mosque to use Standard Arabic, which is different from the local vernacular. Consequently, going to school is the way to acquire the H rather being born in a specific family. This led some sociolinguists to claim that diglossia does not guarantee equality between the people since some of them do not go to school, and hence do not have the chance to learn Standard Arabic. Ferguson (1959) goes on claiming that both the H and L varieties should be used in their respective situations. He states that: « To use L in situations where the H is required constitutes a serious social blunder, while the opposite mistake would be an object of ridicule. »

Later on, Fishman (1968) expanded the notion of diglossia to cover situations accounting for bilingualism and diglossia within one conceptual framework (**EXTENDED DIGLOSSIA**). He refers to Paraguay as a diglossic community although the H and the varieties are respectively Spanish and Guarani, an Indian language totally unrelated to Spanish. In other words, Fishman extends the term diglossia to include any society that uses two or more varieties under distinct circumstances. Yet, it has been argued that this development is not adequate since it seems to make every society diglossic, even English-speaking Britain. The diglossic value remains in its possible use in sociolinguistic typology. It provides the classification of communities according to the sociolinguistic set-up type. In fact, with the kind of set-up found in countries such as the UK and the USA, diglossia provides a contrastive aspect to show that the varieties mentioned are social dialects. Accordingly, Fishman and Ferguson's approaches towards the notion of diglossia « extended diglossia » and « in-diglossia » respectively are different though they agree on the functional distribution of language varieties in society.

Borrowing and Interference

All languages borrow items from each other and have always done so. In the European context, certain languages seem to have been particularly prone to borrowing from other languages; for instance, German has over centuries incorporated large numbers of words from Latin, Italian, French and more recently from English. English, too, has over centuries borrowed extensively from European languages and also from other languages. Indeed, 52% of the words used in English are borrowings from Romance languages. Today, it is the most "prolific donor", giving words to most languages of the world.

Borrowed items can be adapted either phonetically or both phonologically and morphologically; an effort may be made to copy the native pronunciation. It is interesting that the word "computer" is pronounced in German in more or less the same way as in English even if the sequence /pj/ does not exist in German. Whether a borrowed word or loan word becomes adapted or not depends on a number of factors such as frequency of use, how quickly it enters the lexicon displacing a native word at least partially, and how easy it is to integrate it phonologically and grammatically. The process of adaptation and integration normally takes some time to be completed. The fact that borrowings are normally very frequent is reflected in the number of lists, sometimes in the form of dictionaries that continue to be compiled in many languages, as well as numerous articles on the issue.

Loan words can be assigned to the "Langue" as described by some sociolinguists. Grosjean (1982) uses the term "language borrowing" to refer to terms that have moved from one language to another and have come to be used even by monolinguals; he distinguishes them from instances where the bilingual borrows items spontaneously and adapts their morphology, which he calls "speech borrowing". The latter clearly falls into the realm of "Parole". The borrowed items are unlikely to become a permanent feature of the host language.

Speech borrowing concerns adults as well as children. The borrowed item serves a momentary need that may be cause by laziness, fatigue or some form of emotional stress, which makes the bilingual forget the correct term in his native tongue. However, the reasons for borrowing are not always of a negative kind. A speaker may consciously choose an item from the other language because they consider it more appropriate or more to the point. Incidences or contexts of borrowing in the speech of bilinguals directed at other bilinguals do not normally lead to misunderstanding; on the contrary, they can add interest, humor or intimacy to the conversation, and cause delight to both interlocutors at their shared linguistic knowledge. At the family level, there may be a number of items borrowed from one language into another; these tend to be related closely to a particular culture and have no equivalents in English or any other language. Considering the Moroccan situation, we notice that the speech of Moroccans is full of borrowings from other languages such as French, Spanish, Tamazight and English. Instances of this are numerous. Let's consider the following set of examples:

Moroccan Arabic word	donor language	English gloss
sswirti	Spanish	luck
skwila	Spanish	School
tamara	Tamazight	hardship
nshaTTi	English	I chat

boulissi	French	police officer
kliki	English	click
trigel	French	to joke

The above are just a few examples from a very big list of borrowings in Moroccan Arabic. We have to note that borrowing does not occur only in languages whose speakers were colonized by other countries, but we have instances of borrowing in some "dominant" languages such as French and English, which have borrowed many words from Arabic, for example.

Code Switching: Types and Reasons

Code switching is the most creative aspect of bilingual speech. It has, however, also been considered as a sign of linguistic decay because bilinguals are not capable of acquiring two languages properly and keeping them separate. The topic has certainly aroused the curiosity of many researches, and different aspects of it have been studied. Sociolinguists have looked into speech communities, both monolingual and bilingual, trying to establish reasons for and patterns of changes of style and language switching. The bilinguals who have attracted their attention often include immigrant groups like Hispanic speakers in the USA (Gumperz, Hernandez, Chavez 1972 and 1975), Estonians in Sweden and the USA (Oskaar 1974) and both minority and majority speakers in minority areas such as Catalan and Spanish in Catalonia or Alsacian speakers in Alsace.

Definitions of Code Switching:

The general description of code switching is that it involves the alternate use of two languages or linguistic varieties within the same utterance or during the same conversation. In the bilinguals' speech, switching may consist of changing languages; in that of monolinguals, there may be shifts of style. McLaughlin (1984) puts emphasis on the distinction between mixing and switching by referring to code switches as language changes occurring across phrase or sentence boundaries; whereas, code mixes take place within sentences and usually involve single lexical items. Much of the data presented on code switching involve cases of single code switches/mixes (Oskaar, 1974, Grosjean 1982). Grosjean gives the following example to illustrate the difference he sees between code switching (a) and borrowing (b):

a. ça m'étonnerait qu'on ait code switched autant que ça.
b. Ça m'étonnerait qu'on ait code switché autant que ça.

Both sentences mean the same thing. For Grosjean, borrowing involves morphological adaptation while code switching does not.

3.2. Types of Code Switching:

There are two types of code switching: **intra-sentential** and **inter-sentential.** Intra-sentential switches contain switches within a sentence; for example:

Va chercher Mark and bribe him **avec un chocolat chaud** with cream on top.

This example is said by a French-English bilingual. Notice that in this example, there is switching from French to English within the same sentence; some sociolinguists refer to this as code mixing. The other type of code switching is inter-sentential wherein switches occur across sentences. Notice the following example from the speech of an adult Spanish-English speaker:

Tenià zapatos blancos, un poco; they were off white, you know.

In this example, we notice that the first sentence is in Spanish while the second is in English. Moreover, code switching can occur at the phonological level; that is to say, when the speaker changes the pronunciation patterns like the addition of aspiration, velarization, stress...

Constraints on code switching:

The two basic types of code switches are those found across sentence boundaries and those occurring inside sentences. Some efforts have been made to find out whether they are likely to be

universal constraints, or language specific ones. Where switching can occur, several possible lines of exploration have been singled out. However, at the moment, to try to make a valid general statement on these issues is rather difficult. One area of difficulty is that the patterns of language switching may well be determined by the specific pair of languages involved. Another stumbling block lies in the nature of the research techniques employed in order to find out where in sentences switches are acceptable; recorded material is analysed and bilinguals are asked to pass judgement about possible switches, but sometimes, these opinions have been found to be in contrast with the comparable findings of other studies.

Who code switches and why?

Code switching has been observed in the speech of children as well as that of adults; for instance, some sociolinguists point out that it begins to happen after the bilingual has become aware of speaking different languages; in other words, code switching is not seen as part of early language mixing. McClure (1977) reports that children tend to use various kinds of code switching depending on their age; whereas, the younger children employ just English nouns in their Spanish; the older ones would switch over phrases and sentences and would also use mixes at the word level. This suggests that a certain level of linguistic proficiency has to be reached before bilinguals are able to switch in the middle of utterances.

Bilinguals, particularly older ones, are normally able to control the amount of code switching they do. Many contextual, situational and personal factors influence the speaker. In an informal conversation between people who are familiar with each other and have a shared educational, ethnic and socio-economic background, code switching can occur frequently. On the other hand, in a formal speech situation between people who have little in common, code switches may be avoided because factors relating to prestige, language loyalty and formality influence the language behaviour in such a way as to concentrate the mind of the speaker on trying to approximate or keep the monolingual standards. Bilinguals also differ among themselves in their attitude to code switching. Some have a relaxed disposition towards it; others consider that to code switch is a linguistic impurity or a sign of laziness; therefore, they try to avoid it. Indeed, code switching is not well viewed by the layman, but for sociolinguists, it is a phenomenon common in the speech of bilinguals and should not be regarded as negative (pc. Peter Trudgill, Essex University, 1986)

People switch codes for many reasons, some of which are of a contextual, situational and personal kind. Talking about a particular topic may cause a switch either because of lack of facility in the relevant register or because certain items trigger off various connotations which are linked to experiences in a particular language. Switching typically occurs when the subject is quoting somebody else, or being emphatic about something. In brief, switches underline the speaker's personal involvement and desire to be well understood. Code switching is also used to express group identity ad solidarity.

Code switching constitutes a habitual and often a necessary part of social interaction among bilinguals. While monolinguals have only one linguistic code at their disposal, bilinguals can rely on other codes. According to sociolinguists, code switching is a linguistic habit the aim of which is to communicate effectively.

PART TWO: PSYCHOLINGUISTICS

Psycholinguistics: Language and Mind

Psycholinguistics can be most simply described as the **study of the relationship between human language and the human brain.**

1. The Human Brain:

The human brain has a higher cell count than the brain of any other animal of the same body weight. Lenneberg's description of the so-called nanocephalic (having an abnormally small head) suggests that the brain appears to play a role in general intelligence. But even in extreme cases of below normal human brain size where general intellectual ability seems to be reduced, the capacity for basic language acquisition seems to remain intact. The same conclusion is drawn from studies of mental retardation. In the case of children with IQ scores as low as 50, Lenneberg notes that:

An IQ of 50 is deficient enough to keep a child from learning the most elementary concepts (counting, social distance, rules of kindergarten parlor games). Yet, it is high enough to use correctly plurals, tenses, question transformations, etc. The general problem that emerges from these considerations, and which is central to psychological theories at large is why are certain tasks easier than others for a given species...?

The answer must be that these tasks are based on a specific neurological capacity for language. It must be the organization of the brain rather than its mass, which underlies this propensity to acquire language in human beings. As the anthropologist Washburn (1959) explains that the areas of the cerebral cortex (the outer layer of gray matter in the cerebrum of the brain, associated with the higher brain functions, as voluntary movement, coordination of sensory information, learning and memory) concerned with speech are very large and that the frontal lobes of man are greatly expanded also and these areas are concerned with elaboration of thought and planning. He adds that foresight and planning are essential to any complicated social life, and in the future it may be possible to demonstrate that the expansion of much of the cortex is directly related to new selection pressures associated with the evolution of complex social systems. Our brains, then, are not just enlarged, but the increase in size is directly related to tool use, speech and to increased memory and planning. The general pattern of the human brain is very similar to that of ape or monkey. Its uniqueness lies in its large size and in particular areas which are enlarged.

1. a. The Two Hemispheres of the Brain:

The right and left halves of the nervous system in animals are generally symmetrical. In humans, there are distinct asymmetries in both structure and function between the two hemispheres of the brains.

Most evidence for lateralization of language and predominantly left lateralization came from the study of brain damaged patients particularly people with aphasia (loss of language) caused by tumors, strokes or bullet wounds. Techniques have been devised for monitoring or assessing differential hemispheric functions in normal healthy people as well. Brain damage to the left hemisphere is far more likely to implicate language than is damaged to the right. In surgical cases where it is necessary to cut the connections between the two hemispheres, allowing them to function separately, it is the left hemisphere that retains

most control of the language. In monitoring brain function in normal individuals, it is the left hemisphere which predominates in tasks of language processing.

1. a.a. The Left Hemisphere:

* It is specialized for certain language functions in right handed people and in a large proportion of left handed people.
* The left hemisphere controls speech apparatus
* The portions of the left hemisphere related to language function are significantly larger than the mirror image portions of the right hemisphere, and such asymmetry has been found in newborn infants and even in fetuses.
* The left hemisphere is apparently finely tuned to language-like sounds, for the purposes of strictly linguistic or acoustic processing.
* The left hemisphere is specialized in analytic tasks. It analyses wholes into units, combines these units into various ways and processes them serially.
* It is grammar that seems to reflect the special capacities of this hemisphere.

1. a.b. The Right Hemisphere:

* The right hemisphere is superior at detecting non language environmental sounds and musical melodies.
* It is specialized in tasks of synthetic and holistic perception (facial recognition, for example)
*Its capacity for language processing is extremely limited: it has only a rudimentary grasp of words and meanings, but very little grammar; thus it is unable to distinguish active from passive, singular from plural, present from past, verb from object...

2. Language Functions in the Left Hemisphere:

2. a. BROCA'S AREA:

The first modern contribution to our understanding of the relations between brain and language was made in the 1860's by the Frenchman Paul Broca; accordingly one of the language areas of the brain is named after him. Broca's area is in the motor cortex, right in front of the portion which controls the muscles involved in speech production. Broca discovered that damage to this area is related to difficulty in speaking, but not in comprehending. The disturbance is specifically linguistic since the speech muscles (jaw, tongue, vocal cords...) can still function for non-speech purposes through the right hemisphere control. In addition, the linguistic disturbance is clearly lateralized since damage to the corresponding area in the right hemisphere does not interfere with speech. Not only is speech slow, effortful and distorted in pronunciation in Broca's aphasia, but the nature of the remaining speech shows an interesting selective disturbance. It is primarily the grammatical elements which are missing: grammatical particles and noun and verb endings. For example, a Broca's aphasic is shown a picture. The patient describes it as follows:
Like the door...crash...like, pants...shirt...shoes...the boy...the dress...
The problem here is not one of organizing speech into sentences, but this patient cannot access grammatical words even if s/he can pronounce them. Indeed such patients have difficulty with pronouns, articles, prepositions, conjunctions...
The interesting conclusion for psycholinguistics is that here we seem to have a situation in which the lexicon is maintained, but syntax is not.

2. b. WERWICK AREA:

Shortly after Broca's discovery, Carl Werwick discovered patients who speak rapidly, using normal syntax but with little content. These patients have damage in a posterior region of the brain, close to the place where the auditory input is processed. Although these patients can have normal hearing of nonverbal sounds and music, their comprehension of speech is seriously impaired. The speech of such aphasics has a small number of content words, generally non-specific and a preponderancy of pronouns. In such patients, the syntactic system seems to be retained, but it functions with an extremely limited lexicon, with few content words available. This is the opposite of Broca's aphasia. Here we have syntax with impaired lexicon. In Werwick's aphasics, Broca's area is intact and can program grammatical utterances but does not receive sufficient information to produce fully meaningful utterances.

Language Acquisition

In describing the development of language, it is useful to differentiate between the child's ability to comprehend speech and his ability to produce it. These skills are usually referred to as **RECEPTIVE** and **EXPRESSIVE** skills respectively. The receptive language skill is always in advance of the expressive language skill although in normal development, there is a constant relationship between them.

The development of receptive skill begins at birth. The newly born infant is immediately exposed to all kinds of confusing noises. At first, he cannot distinguish between one sound and another. After approximately 6 to 8 months, however, he begins to recognize the difference between a human voice and other noises. This voice is usually his mother's, and ha may show recognition by a facial expression such as a smile. At this stage, he cannot understand anything the voice says to him. The average child cannot distinguish between affection and scolding, for example until about 6 months after birth. By the time the infant is approximately 9 months old, he begins to respond to a few words: very often the manes of favorite toys or a teddy bear. At this stage, he only responds by gesture or movement; he will probably not be able to say the words himself. During the next three months, the child learns to understand simple relationships between concatenated words and by 12 months, he can respond to simple commands. By this time, the child is mobile crawling or walking. The complexity of the utterance which the child can understand gradually increases until at about 18 months to 2 years. At this age, he can understand quite complex grammatical constructions even if he is not able to use them himself.

The development of the expressive language skill is the development of active participation in speech and language. The child's first vocalization is at birth when the shock of air in the lungs for the first time produces the reaction which is noise in the larynx. This type of reflex sound, the birth cry, can hardly be considered as the beginning of the development of speech. The same can be said of all the noises made by the child during the first 8 to 12 weeks of life. The infant may respond vocally to pain, pleasure, hunger, but these are only reflexes: the same mechanism that makes a person pull his finger away sharply when it touches something hot. The development of speech proper begins when the child can produce sounds at will by conscious effort. The first stage of this kind of sound production is called **BABBLING** and usually begins towards the end of the third month of life.

At first, the child produces only a limited number of sounds in his babbling, but his repertoire of recognizable speech sounds increases quite rapidly until by the age of about 6 months. At this age, the child produces a wide range of sounds and uses them in his play. An important milestone in the development of his babbling occurs when the child is about 9 months old. At this stage, he learns to repeat the same sounds over and over again. He usually produces a syllable consisting of consonant plus vowel and so the repetition of such syllables one after the other is called **REDUPLICATION STAGE**. At about the same time, the child learns to imitate others as well as himself and often attempts to echo adults who speak to him even if he cannot understand what he is repeating and his repetition is faulty. This stage or this type of behavior is called **ECHOIC RESPONSE**.

The child is still not using sounds as symbols to represent persons or objects in the world around him; that is, he is not using words. He will begin using his first words at about 12 months. At this age, the child begins to use recognizable words; he will also begin to invent patterns of sound and use them in a symbolic way. Such words which the child invents for himself are called his JARGON. The development of jargon is an important stage in the acquisition of language since it is connected with the infant's desire to categorize the world around him and to use a symbolic system of reference to it.

When the child is about 18 months old, he will be using perhaps 20 meaningful words and a great deal of jargon At this stage, his communication with others will still be restricted to single word utterances, or to use the more technical term: **HOLOPHRASTIC STAGE**. The concatenation of words into sentences marks the true beginning of grammar. This normally takes place at about 2 years and is at first restricted to the juxtaposition of two words and then gradually develops into more complex sentences. A child has usually acquired most of the grammatical forms of his native language by the time he is 5 or 6 years old.

Once the child is using two-word utterances, it is possible to distinguish word classes or parts of speech in his language. A widely used analysis of word classes at this stage of language development is that of **PIVOT** versus **OPEN CLASS WORDS**. The term pivot is used to refer to a small group of words used very frequently and in the form of function words or grammatical operators; whereas, the term open class words refers to a larger group of words used less frequently but as full semantic words. Below are examples of pivotal utterances:

- **See baby, no mama, other milk, see pretty, mama come, shoe off, daddy gone...**

It can be seen that even with a severely restricted grammatical system, the child can use language creatively and can produce ea great variety of sentences most of which are novel and unique in that the child has never heard them before and may never say them again. Sentences of this type bear little resemblance to the sentences used by adults, and it would seem that imitation plays a subordinate role in the development of syntactic patterns. In fact, the evidence of some observers suggests that adults imitate children more than children imitate adults where this kind of sentence is concerned. In putting words together, the child is developing his own grammar. At first, his grammatical system is very rudimentary, in just the same way as his phonological system is restricted in the early stages.

THEORIES OF LANGUAGE ACQUISITION:

- **Imitation Theory** - Children hear speech around them and copy it. When a child is raised in an English speaking environment he acquires English, although mistakes such as over-generalization "*goed*" and "foots" are predictable and consistent.
- **Reinforcement Theory** - The way in which adults coach children when using language by praising or correcting the children. Parents may sometimes correct the truth of the statement rather than the form. The children's mistakes are often rule governed (by perhaps always adding the suffix -ed to past tense forms).

- **Active Construction of a Grammar Theory** - Rules are hypothesized by the linguistic input recognized by children acquiring a language. As children continuously receive language input, their language is revised to become a model of adult grammar. This accounts for the fact that children can create novel sentences unlike those heard from

  Innateness theory or nativism: According to Noam Chomsky, every normal child is born with the capacity to acquire any language he or she exposed to. This is what he calls the Language Acquisition Device (LAD).

- **Behaviorism:** According to the behaviorists, there is stimulus generalization, which means that if the child is reinforced for a certain response, s/he will go on producing response to other situations similar to the first one. The behaviorists regard language as a set of habits no different from other human functions.

The Mental Lexicon

The mental lexicon, also termed psychological lexicon is see as a dictionary with lexical entries located in the brain. That is to say, each human being has this mental lexicon and each time he hears a word, he uses it to interpret its meaning.

HOW DOES THE MENTAL LEXICON WORK?

According to some experiments, words of high frequency are accessed more rapidly than those of low frequency. This is so because frequent words come first in the mental lexicon. When someone hears a word and wants to interpret its meaning, it all happens in his psychological lexicon. There is a match between what he hears and what he sees. Pronouns, prepositions, articles...are accessed more rapidly than other words. For instance, in a telegram, these parts of speech are not written but the message is understood.

Likewise, there is a claim that the mental lexicon is like a real dictionary with lists of words "written" in alphabetical order. This is called phonological encoding. When a person reads something, they look at the word (visual capacity) and access it directly after they translate it from visual to mental. An experiment was conducted wherein some informants were asked to reject nonsense words from a list more or less like the following: melp, brane, sagm. Surprisingly enough, the informants rejected melp and sagm more rapidly than brane. This shows that the word "brane" was encoded phonologically because it is pronounced in the same way as "brain"

Another experiment concerning phonological encoding consisted of giving informants sets of words and asking them whether they were similar or not: The sets are:

Set 1: met / wet	candle/handle	bribe/ tribe
Set 2: few/sew	lemon/demon	mint/pint

Set 1 consists of words that rhyme, but in set 2 the words do not rhyme even if they have the same spelling. Here two hypotheses are formulated:

Hypothesis 1: If the access is direct, there should be no difference between set 1 and set 2.

Hypothesis 2: If words are accessed after being encoded, set 1 is accessed more rapidly than set 2.

Normally, it should take more time to access set 2 because the words are pronounced differently. As a matter of fact, what happens in this experiment is that the informants responded to set 1 more rapidly than to set 2. That is to say, the reaction time (RT) was quicker. This reinforces phonological encoding. It would seem that whenever people are presented words visually, they access them and match them in their mental lexicon after being encoded phonologically. Notice that there is no reference to meaning yet. In another experiment, informants were given items such as:

A. blame/flame

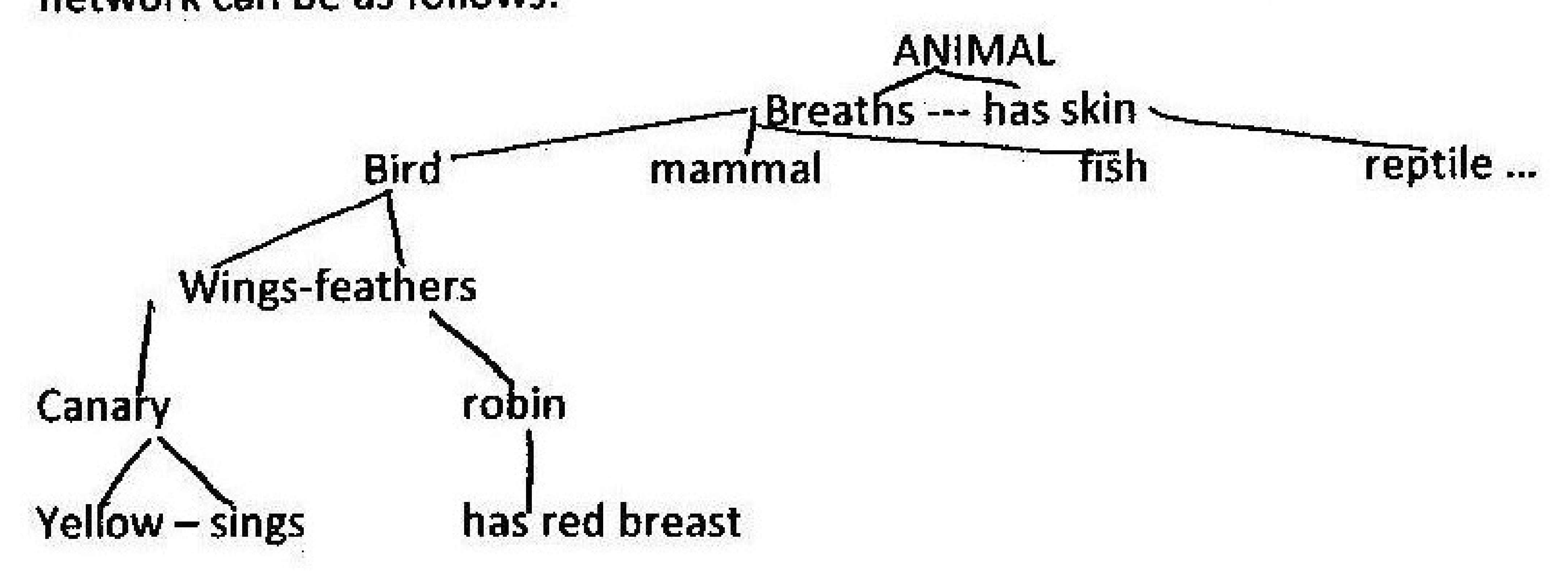
B. rough/dough

They were asked to indicate whether they were similar or different by using true (T) or false (F). They used T for set A and F for set B. This is called phonological stimuli. There are also graphemic and semantic stimuli. Consider the following sets:

A. nasty/hasty **Graphemic stimuli**
B. mourn/grieve **Semantic stimuli**

For B, neither spelling nor rhyme is involved, but meaning is. What is generally noticed is that the reaction time for phonemic stimuli is quicker than graphemic, which is itself quicker than semantic. Two experiments were conducted wherein informants were asked to respond to certain sets of words; the response was measured. The first experiment involved people who were not disturbed by any noise, and in the second experiment, there was noise. The results were quite consistent whether there was noise or not especially for the graphemic and semantic stimuli.

Concerning semantic stimuli, Atkinson et all (1982) discuss some experimental work done in the field and claim that words are stored at nodes in networks. Each node is associated with a set of properties. They developed a hypothetical portion of such a network. This mirrors the hyponymic relations which exist between words of the same class. The semantic network can be as follows:



According to Atkinson, the informants have to move up and down this tree in order to find the meaning of "canary" for example. This takes time, and it is this sort of time which can be measured by using RT (reaction time) task.

So far, I have been talking about experiments, and I assume that it is important for you to know how experiments are conducted in psycholinguistics. Consider the following steps:

1. **Hypothesis:** (for example, phonological encoding)
2. **Informants:** (volunteers)
3. **Design:** (procedure and RT measurement)
4. **Stimuli:** (set of words)
5. **Analysis:** (of the findings)
6. **Results**
7. **Interpretation of the results:** (verification of hypothesis)

Speech Perception

In perceptual phonetics, it is important to distinguish between HEARING and PERCEPTION.

1. **Hearing:** It is an automatic passive process which does not involve any thought process or cognitive intervention. The processes involved are quite complex. When we hear a sound, it passes along the ear canal to arrive at the eardrum (a membrane in the ear canal between the external ear and the middle ear; tympanic membrane)

2. **Perception:** It is a complex active process which involves cognitive processing of the signal received at the auditory cortex (a layer of gray material covering the brain)

There are many theories of speech perception some of which are active and some passive. The two main theories which emphasize some reference to speech production are: Motor Theory and Analysis-by-Synthesis.

*A. **Motor Theory***: It was introduced by Liberman and his colleagues at Haskins Laboratory. It tries to find a one-to-one correspondence between phonemes and the acoustic speech signal. However, it is very hard to find stable acoustic cues for each phoneme. This is so because different acoustic events can be perceived as the same phoneme as in "pat" and "pad", which are both perceived as "pat". The opposite is also true because the same acoustic events can be perceived as different in different contexts as in:

Pat and Bill /padan bil/

Pat came / pat keim/

Likewise, it would be inefficient to transmit and perceive one phoneme at a time.

Going back to the Motor Theory, it is an active theory according to which the mechanism used by the listener to mediate between the acoustic signal and phonetic or phonemic information is the listener's articulatory knowledge. That is, the fact that humans are inherently speakers helps them in their speech perception even if they cannot speak normally.

*B. **Synthesis-by-analysis theory***

Like the motor theory, it is active and tries to find a one-to-one correspondence between the phoneme and acoustic speech signal. It also refers to speech production, but the reference is more acoustic, less articulatory and relies on a system of matching. Indeed, the listener receives an auditory model and analyses it by eliciting and auditory model of his own production. The advantage of this is that the listener can normalize variations caused by fast speaking rate.

What can be noticed is that active theories emphasize the role of linguistic and articulatory knowledge unlike the passive theories like Template Matching and Feature Detectors, which emphasize the sensory, filtering mechanisms of the listener and give speech production knowledge a minor role.

*C. **Template Matching***: Human beings (like birds) store abstract patterns of speech (singing for birds) called Templates, which translate to phonemes or syllables, and when they listen,

Sentence Production and Comprehension

1. Sentence Production:

It is an issue which must be studied objectively. To do so, we have to rely on observation. What can be observed when people speak involves phenomena such as hesitation, errors including slips of the tongue and tip of the tongue **TOT.**

A. Hesitations:

These are numerous and account for how people produce sentences. Speech in which hesitations do not occur is said to be inferior. As a matter of fact, hesitation is equal to superiority because readymade sentences are not natural. Hesitations occur in places where people need to stop and think about what will occur next. This is termed PAUSE. Pauses do not occur often when they precede a sudden increase in the amount of information. Likewise, people pause in order to look for lexical items in their mental lexicon. The fact that people hesitate shows that what is happening in speech production is not something sequential. That is to say, we cannot plan a clause, utter it and plan another and utter it. There is an overlap. Consider the following:

PLAN X **UTTER X** **PLAN Y** **UTTER Y**

This model is a naïve one because speech is affected by some factors which make it more complicated and definitely not sequential. What actually happens is something like this:

PLAN X **PLAN Y**
UTTER Y

Notice that there is an overlap and also a kind of anticipation, which shows that the mind is ahead of the tongue.

B. Tip of the tongue phenomenon TOT

TOT is a natural phenomenon and indirect evidence that when we produce a sentence, there is a complicated process going on in our minds. Brown (1966) read out some definitions to his informants in order to find out more about TOT. The definitions were of uncommon words such as "sextant" (instrument used by navigators to measure the angular distance between two objects). Most informants were in TOT state. To help them out, Brown gave them clues such as the number of syllables the word has. He even told them that the word has "s". They came up with words such as "compass". This shows that the informants could remember the sound "s" as well as the definition, but the words they gave did not conform to the definition given by Brown. This is exactly what happens when somebody does not remember the word but remembers the number of syllables, sounds.... We can say that the person is in a TOT state.

C. Speech Errors:

In psychology, Freud talked about this phenomenon and explained slips of the tongue from a sexual point of view. In psycholinguistics, errors made in spontaneous speech are not at random but selective. They occur at certain places and not others. They can provide valuable insight into the fact that native speakers' access is planned. Speech errors are composed of certain types such as substitution, exchange, addition, omission, anticipation, affricates...

C.1. Substitution: Errors in which a target segment is changed, nut the number of units stays the same: my fand (my hand)

C.2. Exchange: Errors in which one or more segments are moved about but no extra segment is added or deleted: emeny (enemy)

C.3. Addition: An extra sound is added: plublicity (publicity) abrout (about)
What we notice is that even if these are errors, they conform to the phonotactics of Engiisn.

C.4. Omission: A sound is omitted as in: dugs (drugs) mentalitic (mentalistic)

C.5. Anticipation (also called spoonerism): Transportation of the initial consonants or consonant clusters of a pair of words, often resulting in an amusing ambiguity of meaning. This proves that speech is pre-planned. For example:

A leading rist (a reading list)
A smick in the tud (a stick in the mud)

C.6. Affricates: These are sounds made up of two sounds like in church or judge. The question is: are they considered two sounds or just one. Experiments have shown that they are composed of only one sound rather than two:
Furger surgery (further surgery)
Andela Javis (Angela Davis)

Note that speech errors do not violate the rules of stress because it emigrates with the sound. Fortunately, thanks to feedback, the speaker can check his speech for correctness and comprehension.

2. Sentence Comprehension:

How one comprehends a sentence is difficult to measure by psycholinguists. Some experiments were conducted to clarify the influence that factors such as frequency, ambiguity and length have on sentence comprehension.

A. Frequency: (how many times a word is used)
Informants were given the following sentences and asked to react to them:

- The **traveling** player found himself without funds.

- The **itinerant** player found himself without funds.

The target bearing words were "traveling" and "itinerant". Notice that the former is highly frequent while the latter is not. Therefore, what was observed was that informants reacted to the first sentence more rapidly than to the second. Another example concerns frequency and expectancy; that is to say, when we hear a sentence, we expect what the speaker is going to say. Consider the following:

- The bird sat on the **branch**

- The bird sat on the **bed**

Informants reacted much more rapidly to sentence 1 than to sentence 2 because they were expecting the end of the sentence. Here they are also using their knowledge of the world. Another experiment was conducted to find out whether complex structures have any effect on comprehension. The informants were given the following sentences:

- The rioter whom the milk that the store sold intoxicated broke the window

- The store sold the milk that intoxicated the rioter who broke the window

Results showed that here was faster reaction to the first sentence than to the second because complex sentences affect sentence comprehension.

B. Ambiguity: It is more concrete than frequency, but there were problems within the experiments because of the variables concerning the informants. The question to be asked is "what effect does ambiguity have on our comprehension?" The results of the experiment showed that ambiguity has an effect on our sentence comprehension because informants reacted more quickly to non-ambiguous sentences than to ambiguous one. The sentences given were:

* The **punch** barely affected the old man.
* The **cocktail** barely affected the old man

The first sentence is lexically ambiguous because the target bearing word "**punch**" has two meaning: **drink** and **blow.** Of course the informants reacted more quickly to the second sentence.

C. Length: It seems that when we hear a word such as "cocktail", we notice that it is redundant because "cock" already gives us a clue of what to expect. The word "punch" however does not have the same effect because there is no clue. Therefore, the comprehension of "cocktail" in terms of length is easier than "punch".

To conclude, it is interesting to mention Clark and Clark's suggestion concerning speech processing. They claim that this takes place when the listener constructs the underlying representations for a sentence in four steps:

Step 1: The listeners take in raw speech and retain phonological representation of it in **working memory.**

Step 2: They immediately attempt to organize the phonological representation into constituents, identifying their content and function.

Step 3: As they identify each constituent, they use it to construct underlying propositions, building continually onto a hierarchy representation of propositions.
Step 4: Once they have identified the propositions for a constituent, they retain them in working memory and at some point purge memory of the phonological representation. In doing so, they forget the exact wording and retain the meaning. (Clark and Clark (1977)).

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